

PROGRAMMABLE TEST STAND W/ PC CONTROL (ESM301)



The Programmable Force Tester is a highly configurable motorized test stand for tension and compression testing applications up to 1.5kN (300 lb). The stand can be controlled from the front panel or via a computer and is fully compatible with Nexygen™ TCD software. The Programmable Force Tester is engineered on a unique modular platform, allowing for "build-your-own" configurability. Features can be ordered individually at time of order or activated in the field. Integrated travel indication, overload protection, and a host of programmable parameters makes the tester quite sophisticated, while its intuitive menu structure allows for quick, simple setup and operation. A password can be programmed to prevent unauthorized changes. With a rugged and modular design, the Programmable Force Tester is a compelling solution for applications in laboratory and production environments.

Standard Features

- LCD display with UP, DOWN, STOP, and emergency stop buttons and soft keys
- Selectable speed units of measurement (mm/min & in/min)
- Password protection of test parameters, to prevent unauthorized changes
- Integrated travel limit switches
- Removable fixture mounting plate with matrix of threaded holes
- Stepper motor-driven, produces 0% speed variation with load
- Mounting holes for bench mounting
- Unique mechanical design significantly reduces column bending

Optional Hardware Features

■ Integrated travel indication with RS-232 output

Displays travel distance for the entire stroke of the test stand. Standard RS-232 output is provided.

■ Multi-function cable, BG gauge to controller

Connects a Series BG force gauge to the controller. This single cable is used to transmit set points, over load signals, and force data.

■ Serial cable, controller to PC

Sends force and travel data on a single cable via RS-232 to a PC.

■ Column extensions

Available in 150 mm (6"), 300 mm (12"), 600 mm (24"), and custom lengths

■ Bench mounting kit

Facilitates safe mounting to a work bench. Consists of a set of mounting adapters, and four sets of hardware with Allen key to accommodate surfaces of various thickness.



▲ The ESM301 is shown in a typical configuration with Series BG digital force gauge and G1008 film & paper grips.



▲ Optional integrated travel indication



▲ Digital controller contains a backlit LCD screen with menu choices for ease of setup and operation

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OPTIONAL CONTROLLER FEATURES

Any of the below option packages may be purchased at time of order or may be added in the field at a later date by entering an activation code.

■ Computer Control

A bi-directional RS-232 port is provided to interface with a PC. Users can write their own custom program or control the stand via a PC using Nexygen™ TCD software. Requires a Series BG or compatible force gauge, 09-1056 serial cable and 09-1143 multi-function cable. If using Nexygen™, also requires a Series BG or compatible force gauge and EF017 travel indication option.

■ Travel Indication

Travel is indicated on the front panel, and an RS-232 port is supplied. Position indication is provided via an internal linear scale, producing significantly higher accuracy than with conventional rotary encoder-based designs. Backlash and nonlinearity are virtually eliminated.

■ Programmable Travel Limits

The ESM301 can stop at or cycle between programmable upper and lower travel distances.

■ Overload Protection

Protects a force gauge against overload (requires the 09-1143 multifunction cable). The user programs the desired percentage of full scale of the gauge. Adjustable analog output voltage setting allows the ESM301 to interface with virtually any force gauge with analog output.

■ Auto-return

The crosshead moves to a limit switch, force (requires a Series BG force gauge), or travel position (requires EF017 programmable travel limits), stops, and reverses direction at full speed to the other limit switch, force, or travel position.

■ Cycling/Dwell Time

Same as Auto-return, but with the ability to program the number of cycles up to 99,999 cycles. Dwell time allows the operator to program the length of time, up to 9,999.9 seconds, in 0.1 second intervals, for which the crosshead pauses between cycles. Independent up and down speeds may be programmed (requires EF013).

■ Programmable Button Functions

Expands UP and DOWN button operation to three user-configurable modes:

1. Maintained (standard): a short push produces continuous motion until STOP is pressed
2. Momentary: crosshead moves only while the button is pressed
3. Auto: short push produces maintained motion, while holding the button down will produce momentary motion

■ Independent Up and Down Speeds

Configurable speeds for up and down directions

■ Low Speed Extended Range

Extends the speed range to 0.5 - 330 mm/min (0.02 - 13 in/min)

■ High Speed Extended Range

Extends the speed range to 13 - 1100 mm/min (0.5 - 45 in/min)

SPECIFICATIONS

Load capacity	
Up to 24 in/min (610 mm/min)	1.5 kN [300 lbf]
> 24 in/min (> 610 mm/min)	1 kN [200 lbf]
Standard speed range	13-330 mm/min [0.5-13 in/min]
Maximum travel	317 mm [12.5 in]
Speed setting accuracy	±0.2%
Speed variation with load	±0% [Stepper motor driven]
Limit switch repeatability	0.03 mm [0.001 in]
Power	Universal input 80-240 VAC, 50/60 Hz
Weight (without options)	14.5 kg [32 lbs]
Included accessories:	Extension rod, small hook, medium hook, #10-32 coupler, compression plate, force gauge mounting hardware, tool kit

ORDERING INFORMATION

Model No. 35-05-01-0003	Description
Hardware	
ESM301	Motorized test stand, 110 V
ESM301E	Motorized test stand, 220 V
ESM301-001*	Travel indication with RS-232 output*
ESM301-002-1	Column extension, 15.2 cm (6 in)
ESM301-002-2	Column extension, 30.5 cm (12 in)
ESM301-002-3	Column extension, 61 cm (24 in)
ESM301-003	Bench mounting kit
09-1143**	Multi-function cable, BG to ESM301**
09-1056**	Serial Cable, ESM301 to PC**
Controller Options	
EF010	Computer control via RS-232
EF011	Programmable travel limits
EF012	Integrated overload protection (requires 09-1143 cable)
EF013	Auto return
EF014	Cycling dwell time
EF015	Programmable button functions
EF016	Independent up and down speeds
EF017	Extended speed range, low
EF018	Extended speed range, high

Main Headquarters

Testing Machines Inc.
40 McCullough Drive
New Castle, DE 19720
Tel: (302) 613-5600
Fax: (302) 613-5619
Info@testingmachines.com

Büchel BV
t/a Messmer Büchel
Fokkerstraat 24, 3905 KV
Veenendaal, Netherlands
Tel: +31 (0)318 521500
Fax: +31 (0)318 540358

Lako Tool and Manufacturing Inc.
7400 Ponderosa Road
Perrysburg, Ohio 43552
Tel: (419) 662-5256
Fax: (419) 662-8225

Lawson Hemphill
7400 Ponderosa Road
Swansea, MA 02777 USA
Tel: (508) 679-5364
Fax: (508) 679-5396
Information@lawsonhemphill.com

Adamel Lhomargy SARL
Z.A. de l'Habitat, Bâtiment
6 Route d'Ozoir, 77680
Roissy en Brie, France
Tel: +33 (0) 1 64402910
Fax: +33 (0) 1 64409211

TMI Canada
P.O. Box 203
Pointe-Claire Dorval
QC, H9R-4N9 CAN
Tel: (514) 426-5855
Fax: (514) 426-1557



www.testingmachines.com

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